



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4  
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ATLANTA, GEORGIA 30303-8960

**APR 10 2013**

Mr. Andrew Bartlett  
Director  
Division of Environmental Assessment and Restoration  
Florida Department of Environmental Protection  
Mail Station 3000  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Dear Mr. Bartlett:

The United States Environmental Protection Agency has completed its review of the revisions to establish site-specific alternative criteria (SSAC) for iron and transparency (as phytoplankton) for the lower Fenholloway River in Taylor County. The final order for the iron SSAC was signed July 21, 2010, and was duly adopted under state law. A final order was also signed on the same date for a dissolved oxygen (DO) SSAC. The transparency SSAC (as phytoplankton) was adopted by the Environmental Regulation Commission (ERC) on May 20, 2010, and was effective for purposes of state law on August 5, 2010. The ERC adoption on May 20, 2010 also included a transparency (as submerged aquatic vegetation) SSAC. All revisions were submitted by letter from Thomas M. Beason, General Counsel of Florida Department of Environmental Protection (FDEP), to Gwendolyn Keyes Fleming, Regional Administrator, U.S. EPA Region 4, dated September 30, 2010.

With the exception of the portion of the transparency SSAC which addresses the minimum number of measurements required to calculate the annual average compensation depth and does not constitute a new or revised water quality standard, the remainder of the transparency (phytoplankton) SSAC and the entirety of the iron SSAC are considered to be new or revised water quality standards. As laid out in the enclosed decision document, titled *United States Environmental Protection Agency Determination Under § 303(c) of the Clean Water Act - Review of Site-Specific Alternative Criteria for the Lower Fenholloway River*, the EPA is approving the iron and transparency (as phytoplankton) SSAC. At this time, the EPA is not acting on the DO SSAC or the transparency (as submerged aquatic vegetation) SSAC, pending further action by the State.

The Agency's decision to approve the iron and transparency (as phytoplankton) SSAC is subject to the results of consultation under section 7 of the Endangered Species Act with the U.S. Fish and Wildlife Service and National Marine Fisheries Service. The Agency will notify FDEP of the results of the section 7 consultation upon completion of the action.

We would like to commend you and your staff for your continued efforts in environmental protection for the State of Florida. Should you have any questions regarding the EPA's action today, please contact me at (404) 562-9470 or have a member of your staff contact Lauren Petter, Florida Water Quality Standards Coordinator at (404) 562-9272.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Giattina', with a stylized flourish extending to the right.

James D. Giattina  
Director  
Water Protection Division

Enclosure

cc: Mr. Thomas M. Beason, FDEP

**United States Environmental Protection Agency Determination  
Under § 303(c) of the Clean Water Act  
Review of Site-Specific Alternative Criteria for the Lower Fenholloway  
River and Coastal Waters**

On September 30, 2010, the Florida Department of Environmental Protection (FDEP) submitted new and revised water quality standards for U.S. Environmental Protection Agency review. The submittal was received by the EPA on October 5, 2010. The revisions were submitted to the EPA by Thomas M. Beason, General Counsel for FDEP, to Gwendolyn Keyes Fleming, Regional Administrator of the EPA's Region 4 Office. This document summarizes the conclusions of the Agency's review of the establishment of two of the four site-specific alternative criteria (SSAC) for the lower Fenholloway River and coastal waters near Perry, Florida, which FDEP included in its submittal. Two Type I SSAC, one for iron and one for dissolved oxygen (DO), were established by final Secretarial Order on July 21, 2010, and were duly adopted under state law. In addition, two Type II SSAC for transparency, one for phytoplankton and one for submerged aquatic vegetation (SAV), were adopted by the Environmental Regulation Commission (ERC) on May 20, 2010.

Under Sections 303(a)-(c) of the Clean Water Act (CWA), 33 U.S.C § 1313(a)-(c), states are required to establish water quality standards and submit them to the EPA for approval or disapproval. Likewise, revisions to a state's water quality standard must also be submitted to the EPA for approval or disapproval. As set out more fully below, the EPA is approving the iron SSAC and transparency (phytoplankton) SSAC as new or revised water quality standards. At this time, the EPA is not acting on the DO SSAC or the transparency (as SAV) SSAC, pending further action by the State.

***Background and New SSAC***

According to the general overview contained as part of FDEP's submitted materials, three petitions were received from Buckeye Florida, L.P. (Buckeye) to establish SSAC for iron, DO, and transparency on January 30, 2009. Public workshops were held in Perry, Florida, on November 10, 2009, and January 14, 2010. Public input included both support for and opposition to the establishment of the SSAC. However, as summarized in FDEP's general overview of the activities, FDEP concluded that, "no scientific information was presented at the public workshops to suggest the SSAC were not protective of the water body's designated use." Additional comments of support and opposition were given at the ERC meeting on May 20, 2010. In addition, the EPA received two letters after the submittal of the revisions for the EPA's review. One letter was dated December 13, 2010, and submitted by Linda Young, Director, Clean Water Network of Florida. The EPA also received a second correspondence dated February 14, 2011 from Jeffrey Brown, counsel for Buckeye. This letter served as a response to the comments made by Linda Young in the December 13, 2010 letter. We have considered the comments made in both of these letters and where necessary we have asked FDEP to clarify, as documented in the revised Technical Support Document (TSD) and subsequent conversations.

The specific extent of the requested SSAC and the applicable criteria values are given below. For reference, the previously applicable Class III marine criterion is presented for each parameter. As noted above, this action only covers the iron and transparency (phytoplankton) SSAC.

***Iron SSAC***

The iron SSAC for the Fenholloway River extends from river mile 0.0 to river mile 3.5 and is, "No more than 10% of the iron measurements in this reach of the river shall be above 1.06 mg/L."

The above criterion is intended to replace the existing criterion which states, “Iron shall be less than or equal to 0.3 mg/L.”

#### *Transparency (phytoplankton) SSAC*

From river mile -0.1 to river mile 3.5, “the annual average compensation depth for photosynthetic activity for phytoplankton shall not be decreased greater than 44.3 percent from background conditions as determined by an annual average compensation depth of at least 0.66 meters at river mile 0.53 (station F06). This value must be based on a minimum of 12 measurements during times when the average flow at Cooley Island Bridge at river mile 7.15 measures less than 200 cubic feet per second.”

The above criterion is intended to replace the existing criterion, which states, “Transparency shall not be reduced by more than 10% as compared to the natural background value,” when the average flow measures less than 200 cubic feet per second. At times when the flow is greater than 200 cubic feet per second, the existing transparency standard applies.

#### Type I and Type II SSAC Regulations

The procedures for developing Type I and Type II SSAC are specifically described in Rule 62-302.800, Florida Administrative Code (F.A.C.). Type I SSAC are intended for a “water body, or portion thereof, [that] may not meet a particular ambient water quality criterion specified for its classification, due to natural background conditions or man-induced conditions which cannot be controlled or abated.” In this case, according to Rule 62-302.800(1)(a), F.A.C., the demonstration required to show that the proposed alternative criterion is necessary due to natural background conditions or man-induced conditions which cannot be controlled or abated must include:

1. A description of the physical nature of the specified water body and the water pollution sources affecting the criterion to be altered.
2. A description of the historical and existing water quality of the parameter of concern including, spatial, seasonal, and diurnal variations, and other parameters or conditions which may affect it. Conditions in similar water bodies may be used for comparison.
3. A description of the historical and existing biology, including variations, which may be affected by the parameter of concern. Conditions in similar water bodies may be used for comparison.
4. A discussion of any impacts of the proposed alternative criteria on the designated use of the waters and adjoining waters.

In addition, Rule 62-302.800(1)(b), F.A.C., states, “The Secretary shall specify, by order, the site specific criteria for the parameters which the Secretary determines to have been demonstrated by the preponderance of competent substantial evidence to be more appropriate.”

Type II SSAC are intended for a specific water body, or portion thereof, on the basis of site specific reasons other than those for Type I SSAC. In addition to the requirements of Type I SSAC listed above, Type II SSAC provisions 62-302.800(2)(c)2. through 6. require:

2. In making the demonstration required by this paragraph (c), the petition shall include an assessment of aquatic toxicity, except on a showing that no such assessment is relevant to the particular criterion. The assessment of aquatic toxicity shall show that physical and chemical conditions at the site alter the toxicity or bioavailability of the compound in question and shall meet the requirements and follow the Indicator Species procedure set forth in *Water Quality Standards Handbook* (December 1983), a publication of the United States Environmental Protection Agency, incorporated here by reference. If, however, the Indicator Species Procedure is not applicable to the proposed site-specific alternative criterion, the petitioner may propose another generally accepted scientific method or procedure to demonstrate with equal assurance that the alternative criterion will protect the aquatic life designated use of the water body.

3. The demonstration shall also include a risk assessment that determines the human exposure and health risk associated with the proposed alternative criterion, except on a showing that no such assessment is relevant to the particular criterion. The risk assessment shall include all factors and follow all procedures required by generally accepted scientific principles for such an assessment, such as analysis of existing water and sediment quality, potential transformation pathways, the chemical form of the compound in question, indigenous species, bioaccumulation and bioconcentration rates, and existing and potential rates of human consumption of fish, shellfish, and water. If the results of the assessments of health risks and aquatic toxicity differ, the more stringent result shall govern.

4. The demonstration shall include information indicating that one or more assumptions used in the risk assessment on which the existing criterion is based are inappropriate at the site in question and that the proposed assumptions are more appropriate or that physical or chemical characteristics of the site alter the toxicity or bioavailability of the compound. Such a variance of assumptions, however, shall not be a ground for a proposed alternative criterion unless the assumptions characterize a factor specific to the site, such as bioaccumulation rates, rather than a generic factor, such as the cancer potency and reference dose of the compound. Man-induced pollution that can be controlled or abated shall not be deemed a ground for a proposed alternative criterion.

5. The petition shall include all information required for the Department to complete its economic impact statement for the proposed criterion.

6. For any alternative criterion more stringent than the existing criterion, the petition shall include an analysis of the attainability of the alternative criterion.

### ***EPA's Regulations and Guidance on Natural Background Conditions***

In addition, the EPA's implementing regulation found at 40 CFR 131.11(b)(1) provides that when a state establishes numeric criteria, those numeric values should be based on (i) 304(a) Guidance, (ii) 304(a) Guidance modified to reflect site-specific conditions, or (iii) other scientifically defensible methods. Furthermore, 40 CFR 131.11(a) requires that state-adopted criteria protect the designated uses of state waters.

With regard to natural conditions, a policy memorandum from Tudor T. Davies, Director of the Office of Science and Technology, to Regional Water Management Division Directors and State and Tribal Water Quality Management Program Directors, dated November 5, 1997 (Davies memo), addresses the establishment of site-specific aquatic life criteria equal to natural background. The memorandum concludes that site-specific criteria based on natural background conditions are allowed by regulation, 40 CFR 131.11(b)(1) and 40 CFR 131.5(a)(2), and are subject to the EPA review and approval.

### ***Rationale for Type I SSAC – Iron***

As part of the State's submittal, a TSD was provided which describes the technical basis for the two SSAC discussed in this current action.<sup>1</sup> First, the analysis of the Type I SSAC for iron will be discussed, followed by the analysis of the Type II SSAC for transparency (phytoplankton). The following discussion summarizes the analysis of the four factors required by the State's regulations (62-302.800(1)(a)1-4.) that must be included to demonstrate support for revising a criterion to reflect natural conditions. The EPA's conclusion regarding consistency with the implementing regulations at 40 CFR 131.11 is addressed in the fourth factor section below.

### **Physical Description and Pollution Sources<sup>2</sup> (Rule 62-302.800(1)(a)1.)**

Pages 3 and 4 of the TSD indicate that the region within which these water body segments are located is characterized by salt marshes, flat plains, pine flatwoods, and swamps. The rationale for the Type I SSAC is primarily focused on the Fenholloway's comparability to the nearby Econfina River, which is considered an undisturbed reference system by the State.<sup>3</sup> Specifically, the waters of the Econfina and Fenholloway basins tend to have high color concentrations, although additional color within the Fenholloway basin originates from the discharge of the Buckeye pulp mill. There are no permitted point sources in the Econfina basin, as documented on page 6 of the TSD. Additional discussion on the elevated levels of iron was provided in correspondence from Chet Thompson, Buckeye, to Ms. Karrie-Jo Shell, EPA Region 4, dated November 4, 2010, clarifying that, "no new addition of iron-containing chemicals in the process or wastewater [is expected]." Furthermore, "iron in the effluent primarily comes in with groundwater and trees. "Concentrations correlate with color and have decreased as

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<sup>1</sup>The TSD originally provided with the State's submission was dated April 2010. Following subsequent clarifications requested of the State, the State also provided a revised TSD, dated May 2012, to further clarify the support for the SSAC under review. Referenced page numbers correspond to the May 2012 version of the TSD.

<sup>2</sup> Since the focus of the Type I SSAC is based on levels of a parameter expected in a natural system, most of this discussion will focus on the Econfina River system and iron SSAC. A more extensive discussion of the Fenholloway River system and the four required Type I factors (as well as the additional Type II factors required by 62-302.800(2)(c)2-6.) for the transparency SSAC will be discussed as part of the Type II SSAC analysis.

<sup>3</sup> Page 3 of FDEP's Final Order for the Iron SSAC states, "In 2006, Dr. Robert Livingston summarized the results of over 30 years of research documenting the diversity of algae, invertebrates, vegetation and fish inhabiting the minimally disturbed Econfina River and associated estuary in the book, Restoration of Aquatic Systems."

effluent color has decreased” and, according to Buckeye’s February 14, 2011 letter to the EPA, “Buckeye has never used iron as a process additive.” Since iron levels are not added to the discharge as part of the process, the presumption is that any iron levels are from natural sources, including influence by the iron present in the source groundwater.

The data to derive the SSAC for iron were collected from cognate Econfina River and Estuary stations. The Econfina serves as a reference waterbody to the Fenholloway. In considering this, the data collected from the Econfina corresponded to similar parts of the Fenholloway, where the SSAC actually applies.

The upstream reach of the iron SSAC is defined as river mile (RM) 3.5 on the Fenholloway River. This location, and the downstream boundaries, are based on the conclusions contained on page 1 of Woodward-Clyde’s November 2, 1995 Response to FDEP’s August 7, 1995 comments (November 2, 1995 Response). Utilizing FDEP’s definition of an estuary, the upstream end of the Fenholloway Estuary is associated with the limit of the presence of salt water. Based on Hydroqual’s field studies and models, this point is located at RM 3.5. For the downstream boundary associated with the iron SSAC, a discussion of the DO SSAC location information<sup>4</sup> clarifies that RM 0 represents the mouth of the Fenholloway River. The entire iron SSAC extent corresponds to what was described as the tidal portion of the Fenholloway River, which is consistent with the consideration of this water as marine.

*Conclusion:* The physical description and characterization of the potential pollution sources given by the State in the TSD and accompanying files fulfills the State’s requirement for this factor.

#### Historical and existing water quality (Rule 62-302.800(1)(a)2.)

Pages 8 and 9 of FDEP’s TSD describe the data analyzed in support of the iron SSAC.

Of the 62 iron measurements, collected at three marine Econfina stations (E03, E04, and E06) during the 2004-2008 time period, the concentrations range from approximately 0.05 mg/L to 2.0 mg/L. The petition from Buckeye also provided the following summary of iron data from 2004-2008:

	Average Concentration	Maximum Concentration
Econfina Estuary	0.44 mg/L	2.00 mg/L
Fenholloway Estuary	0.62 mg/L	2.60 mg/L

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<sup>4</sup> See pages 1-2 of Woodward-Clyde’s June 2, 1996 Response to FDEP’s March 8, 1996 comments (June 1996 Response). The June 1996 Response document, referring back to Livingston’s 1995 report, states: “The zone of estuarine conditions west of river milepoint zero [which represents the mouth of the Fenholloway River] is now called the *Adjacent Coastal Waters*. The zone of estuarine conditions extending upstream from river milepoint zero is now called the *Tidal Portion of the Fenholloway River*. Thus the whole of the zone of estuarine conditions defined by the Livingston study is described as the *Tidal Portion of the Fenholloway River and the Adjacent Coastal Waters*.”

The available data demonstrates the level of iron in both estuaries. Furthermore, on some frequency, the iron concentrations present in both river systems are elevated above the generally applicable iron criterion of 0.3 mg/L.

*Conclusion:* The description of the historical and existing water quality data provided by the State in the TSD and accompanying files fulfills the State's requirement for this factor. The EPA's analysis regarding the interpretations by the State and its conclusions of use protection is discussed in the fourth factor section below.

Historical and existing habitat and biology (Rule 62-302.800(1)(a)3.)

FDEP has provided information to document that the Econfinia River represents a water body that is minimally impacted by human disturbance. The main way that FDEP documents land use development is through the use of Landscape Development Index (LDI) scores. LDI scores range from 1 to 10, with 1 representing the least human energy input (i.e., natural background) and 10 representing the most human energy input (i.e., business district). The LDI score based on land uses from 2004 for the Econfinia River was 1.14. As indicated on page 5 of the TSD, an "LDI score of 1.14 demonstrates a predominance of natural conditions and a lack of land uses in the basin that would significantly contribute to human induced alterations of the iron, dissolved oxygen, and transparency regime." In addition to the low LDI scores, the Econfinia River sites had "healthy" and "excellent" biological scores which indicate a "history of healthy biota."

*Conclusion:* The description of the biological data provided by the State in the TSD and accompanying files fulfills the State's requirement for this factor. The EPA's analysis regarding the interpretations by the State and its conclusions of use protection is discussed in the fourth factor section below.

Impact of the criterion on the designated uses of the waters and adjoining waters (Rule 62-302.800(1)(a)4.)

From the 62 iron measurements, collected at the three Econfinia stations during the 2004-2008 time period, FDEP developed a criterion of 1.06 mg/L, which represents the upper 90<sup>th</sup> percentile of the concentrations found in the Econfinia River. The proposed criterion provides that concentration cannot be exceeded more than 10 percent (10%) of the time.

Page 5 of the TSD further describes the healthy status of the Econfinia River by stating that the "shallow offshore habitats of Apalachee Bay adjacent to the Econfinia River are also biologically healthy" and support a diverse seagrass community that remains undisturbed and relatively pristine. Lastly, page 8 of the TSD states that, "since the Econfinia River supports a healthy, well balanced community of aquatic flora and fauna, this level of iron (1.06 mg/L) is expected to result in full support of aquatic life in the Fenholloway system. This level of iron in non-potable water poses no health risk to humans."



In summary, FDEP concludes that there is no impact of the criterion on the designated uses and adjoining waters. Furthermore, the State concludes the SSAC supports a sensitive aquatic life community and represents the natural background condition.

*Conclusion:* The use of the 90<sup>th</sup> percentile for least-impacted reference conditions and the accompanying 10% exceedance rate, represent thresholds commonly used by the State and supported by the EPA. Since the adoption of the iron SSAC provides specific duration and frequency components, it is the EPA's understanding that the 10% exceedance rate allowed for individual measurements is not intended to be compounded with an additional 10% rate based on the binomial assessment methodology applied in Florida's Impaired Waters Rule. Given the conclusion by FDEP that this level of iron reflects a reference condition and the associated Econfina data that support the criterion derived, the EPA concludes that it is appropriate and consistent with 40 CFR 131.11(b)(1)(ii) and 40 CFR 131.11(a), to revise the iron criterion to reflect the site-specific conditions that support the designated use of these waterbodies.

### ***Rationale for Type II SSAC – Transparency (Phytoplankton only)***

The following summarizes the analysis of the State's Type II requirements for a demonstration of support for revising a criterion based on reasons other than natural background, but which still fully maintains and protects the designated use(s) of the waterbody. The EPA's conclusion regarding consistency with the implementing regulations at 40 CFR 131.11 is addressed in the fourth factor section below.

#### **Physical Description and Pollution Sources (Rule 62-302.800(1)(a)1.)**

In addition to the content described within the same titled section within the Type I SSAC discussion, additional detail describing the Fenholloway River itself and its associated pollution sources is presented within this section. As outlined in Buckeye's transparency petition, the Fenholloway River is 36 miles long and originates in a freshwater wetland. The two major potential point sources located within the Fenholloway drainage area include the Buckeye pulp mill (currently located at RM 24.6) and the City of Perry wastewater treatment facility (WTF). However, according to page 3 of Buckeye's petition, the City of Perry WTF ceased discharging in 2008 and is using a land treatment system with no river discharge. Buckeye has proposed moving its discharge point further downstream on the Fenholloway River. Consistent with the recommendation of the 1994 Use Attainability Analysis (UAA) to relocate the discharge, the proposed location for the discharge will be at approximately RM 1.7.

As is the case with the iron SSAC, the transparency SSAC for phytoplankton applies at a specific location. The phytoplankton transparency SSAC applies from RM 3.5 downstream until RM -0.1 which would include the proposed location of the relocated discharge. The upstream reach of RM 3.5 for the phytoplankton SSAC is based on the same conclusion contained in the November 2, 1995 Response document detailed earlier in this decision document. The lower reach (RM -0.1), which serves as the most downstream location for the application of the phytoplankton transparency SSAC, corresponds with the downstream limit of the model scenarios. In addition to being applicable for specific reaches, the transparency (phytoplankton) SSAC only applies below a specific high flow volume (when the

annual average flow at the Cooley Island bridge is less than 200 cfs, minus inputs from permitted dischargers).<sup>5</sup>

*Conclusion:* The physical description and characterization of the potential pollution sources given by the State in the TSD and additional files fulfill the State's requirement for this factor.

Historical and existing water quality (Rule 62-302.800(1)(a)2.)

An extensive description of the historical and existing water quality was included within the petition for transparency and has been excerpted here:

By the mid-1940s, Taylor County had experienced significant economic and population declines due to the loss of a large lumber industry. In response, the citizens of the county petitioned the state legislature to designate the Fenholloway River an industrial stream in an attempt to attract industrial interests to the area. In 1947, the Florida legislature granted Taylor County its request and designated the Fenholloway River as an 'industrial use' stream.

Procter & Gamble, Buckeye's previous owner became interested in the area, purchasing an existing lumber mill site at the town of Foley in 1951. The Foley pulp mill was completed in 1954 to produce dissolving kraft pulp. A second pulp manufacturing line was added by 1958. Its current effluent discharge point is river mile 24.6 under NPDES FL0000876.

With the emergence of the Clean Water Act and its implementing regulations, the Fenholloway River retained the "industrial use" designation – a Class V stream under Florida's surface water classification system. The Clean Water Act requires surface waters that do not meet the "fishable and swimmable" goals of the Act – Class III designation by Florida standards – to undergo study by the Florida Department of Environmental Protection (FDEP) every three years to determine if a re-classification to a higher designation is possible. This study process is known as a Use Attainability Analysis (UAA).

The last Fenholloway River UAA was initiated in 1991 and completed in 1994. This comprehensive study involved the EPA, the FDEP, and Buckeye, including expert scientists from each of these entities. Unlike previous UAAs, which focused on potential in-plant and treatment improvements, this assessment went beyond the traditional study boundaries and included other elements such as the relocation of the discharge point and river flow enhancement. In all, over 100 technological options were initially considered. No direct analysis

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<sup>5</sup> On page 18 of the TSD, FDEP clarifies that "[a]t all other times, the existing transparency standard applies, in which transparency shall not be reduced more than 10% based on background levels."

of the transparency criterion was performed during this UAA, but the impact of the color of Buckeye's effluent was evaluated in connection to its impact on seagrass habitat. The UAA concluded the following as it relates to seagrass and transparency:

- Seagrass populations in the Fenholloway Gulf drainage were reduced (compared to the Econfina and Aucilla Gulf areas) by alteration in light transmission. This alteration was caused by mill loadings of color, DOC and nutrients. The net loss of seagrass was approximately 9.2 square miles greater than might be expected from a natural freshwater drainage area. About 1.4 square miles of sea grasses were debilitated causing very sparse distributions.
- Dr. Robert J. Livingston, of Florida State University, and his firm Environmental Planning & Analysis, Incorporated, estimated a target color value based on both field and laboratory microcosm data to provide a return to seagrass habitat conditions found in the reference Econfina system. A reduction in color from about 60 PCU to 40 PCU would be required in the vicinity of potential seagrass habitat approximately 1.2 miles offshore.

The UAA resulted in the identification of several technically and economically viable changes, including reductions in effluent color to achieve 40 PCU at 1.2 miles offshore, referred to as the Fenholloway Project, which would allow the river to achieve Class III status. Based on the outcome of the UAA and its recommended course of action, on December 15, 1994, the Environmental Regulatory Commission (ERC) voted to repeal the Class V designation, effective December 31, 1997. On March 25, 1995, the State of Florida Department of Environmental Protection and Buckeye entered a legally binding compliance schedule agreement known as the Fenholloway River Agreement.

Since 1994, several additional studies have been completed to address public concerns related to the Fenholloway, including water quality concerns, such as the effect of nutrients on the river, and whether the facility's discharge should be relocated. Several TMDLs have been developed to address water quality impairments in the river. In 2007, TMDLs were developed for DO, biological oxygen demand, unionized ammonia, fecal coliform, and dioxin. In 2009, TMDLs for nutrients (total phosphorus and total nitrogen) were completed.

Since this SSAC addresses transparency related to phytoplankton, information describing the historical and existing water quality in the Fenholloway as it relates specifically to that parameter is presented below.

*Conclusion:* The information provided and referenced above relative to historical and existing water quality fulfills the State's requirement for this factor. The EPA's analysis regarding the interpretations by the State and its conclusions of use protection as it pertains to the revised criteria levels is discussed in the fourth factor section below.

#### Historical and existing habitat and biology (Rule 62-302.800(1)(a)3.)

Although SAV, as described in the petition's information above, was evaluated in connection with the impact of color from the mill's discharge, phytoplankton was selected for the riverine portion of the adopted SSAC because SAV is not expected to be present in the river itself. Phytoplankton was analyzed by looking at algal attributes such as phytoplankton abundance, phytoplankton diversity, and chlorophyll *a* concentrations associated with cognate stations during the data collection timeframe. Page 14 of FDEP's TSD summarizes the analysis of these three non-modeled attributes in addition to the modeled chlorophyll estimates (described in the next section).

BVA performed hierarchical cluster analysis (including Analysis of Similarity) on phytoplankton abundance data for cognate stations E06 (reference site) and F06 (site representative of the proposed SSAC) for August samples from 2005-2008. Results indicate that the Econfina reference phytoplankton community was similar to the Fenholloway phytoplankton, with interannual differences greater than differences between the two sites (BVA 2009). This analysis was only conducted for August samples as an exploratory analysis, but proportions of major taxonomic groups are consistent between sites (see Table 2 and Figure 10 for examples from 2009 and 2010) and annual average chlorophyll *a* concentrations have been similar between sites over time (Figure 11). These findings indicate that the Fenholloway phytoplankton community is not appreciably different from the Econfina reference system, demonstrating that the transparency regime in the Fenholloway maintains full support of this important aquatic life use endpoint.

The use of the cognate data indicates that there is not an appreciable difference in the results between the Econfina and Fenholloway Rivers, and as stated on page 14 of the TSD, suggests that "water quality conditions in the Fenholloway during that time period were protective of the phytoplankton community."

*Conclusion:* The description of the biological data provided by the State in the TSD fulfills the State's requirement for this factor. The EPA's analysis regarding the interpretations by the State, the SSAC expectations, and the State's conclusions of use protection is discussed in the section below.

#### Impact of the criterion on the designated uses of the waters and adjoining waters (Rule 62-302.800(1)(a)4.)

With regard to the submitted materials, the transparency petition identifies, on page 7, that the only potential adverse impacts to a change in the transparency standard would be the potential loss of SAV and the loss of photosynthetic activity for phytoplankton. However, the following reasons were given in the petition to support the conclusion that the alternative criterion would not cause these adverse impacts:

For the proposed alternative standard to protect photosynthetic activity for phytoplankton, HQI has shown the primary productivity of the Fenholloway estuary, measured in concentrations of chlorophyll-a, will be maintained. As a black water river, the natural productivity of the system

is low. Higher levels of nutrients are associated with higher river flow rates which are associated with higher levels of color. This association maintains a low level of photosynthetic activity for phytoplankton. The HQI modeling shows the level of chlorophyll-a will be maintained for the projected levels of light transmission. In addition, BVA has determined the Buckeye discharge has not changed the structure of the phytoplankton assemblage in the Fenholloway system and therefore the alternative standard will be protective of the phytoplankton assemblage.

While the petition states that the “Buckeye discharge has not changed the structure of the phytoplankton assemblage in the Fenholloway system,” the TSD prepared by FDEP provides two lines of evidence for justifying the adoption of the transparency SSAC for phytoplankton. The Department concludes on page 14 that the “[p]hytoplankton community data demonstrate that the phytoplankton community composition, diversity, standing crop, and frequency of blooms from 2005-2010 did not differ appreciably between this tidal portion of the Fenholloway River and the cognate portion of the Econfinia River. Those results... suggest that the water quality conditions in the Fenholloway during that time period were protective of the phytoplankton community. However, reductions in color and nutrients are part of the proposed effluent changes that will be in place when this SSAC is in effect. Therefore, the SSAC was developed with the model of the projection scenario.”

For the second line of evidence, in conjunction with the demonstration that the data associated with the phytoplankton communities show that conditions in the Fenholloway River are protective based on comparability to the Econfinia River, Hydroqual performed analyses to determine the loss of compensation depth that would be associated with the natural condition (the condition that would exist in the absence of the mill discharge) and, therefore, be associated with a level that is protective of the designated use. Hydroqual developed two scenarios, a natural condition and projection scenario (including the mill discharge with improvements). Both scenarios considered the reduction in depths and percent reductions of chlorophyll *a* concentrations identified in both the growing season and annually. The model predicted the compensation depths (and corresponding reduction percentages) associated with and without the discharge and determined that the projected mill discharge level was similar to the lower end of the expected range associated with the natural condition. On page 17 of the TSD, the discussion concludes “[a]lthough the reductions in the compensation point depth are greater than the 10% reduction allowed under the default criterion, the estimated algal biomass in this portion of the river will not differ appreciably under future effluent conditions compared to the natural conditions scenario and therefore will support an appropriate estuarine standing crop of phytoplankton.” Therefore, as stated on page 14 of the TSD, FDEP was able to conclude “[t]hese findings... demonstrate[e] that the transparency regime in the Fenholloway maintains full support of this important aquatic life use endpoint.” The Department further concludes on page 37 of the TSD that the SSAC will protect designated uses and adjoining waters based on the assumption the transparency reduction “will have no adverse effect on human health” and “will protect phytoplankton communities... similar to that of a minimally disturbed reference system.”

*Conclusion:* The TSD demonstrates the SSAC is protective of the designated uses through two approaches: 1) comparison to the nearby least-impacted Econfinia River and 2) modeling to compare the expected water quality condition following the proposed discharge improvements to a modeled natural condition of the Fenholloway River. As referenced on pages 14 and 17 of the TSD, these two analyses

demonstrate that the Fenholloway phytoplankton community is not currently appreciably different than the Econfina reference system (first approach) and expected water quality conditions under the proposed SSAC (following implementation of proposed discharge improvements) will not differ appreciably from the natural conditions scenario (second approach). Both of these conclusions indicate that the SSAC will protect the designated uses of the applicable waters and any adjoining waters. The SSAC does not represent natural background conditions, as would be the case for a Type I SSAC, but was developed on the basis of consideration of such conditions as well as the projected impact of the discharge. As discussed, a Type II SSAC must be based on a demonstration that the proposed criterion would still fully maintain and protect all the existing and applicable designated uses. Therefore, the EPA concludes it is appropriate and consistent with 40 CFR 131.11(b)(1)(ii) and 40 CFR 131.11(a), to revise the transparency (phytoplankton) criterion to reflect the site-specific conditions that support the designated use of these waterbodies.

The EPA has concluded that the portion of the transparency SSAC which addresses the minimum number of measurements required to calculate the annual average compensation depth does not establish or revise the magnitude, duration or frequency of the revised criteria and, therefore, does not constitute a new or revised water quality standard. The fact that the EPA has not reviewed or acted upon those provisions that it determined are not new or revised water quality standards does not mean that the EPA has disapproved those provisions or that the EPA has made a determination that the provisions are invalid pursuant to the CWA.

Assessment of Aquatic Toxicity, Risk Assessment, and Assumptions in the Risk Assessment (corresponds to Type II-specific requirements outlined in 62-302.800(2)(c)2. and 3.)

Buckeye's petition addresses these two regulatory components by stating that neither an assessment of aquatic toxicity nor a human exposure and risk assessment is relevant for the transparency SSAC because the transparency SSAC only addresses the light availability for photosynthesis.

*Conclusion:* The conclusions of the petition are appropriate.

Assessment of Assumptions Used in the Risk Assessment (corresponds to Type II-specific requirements outlined in 62-302.800(2)(c)4.)

Buckeye's petition addresses this regulatory component by stating that a risk assessment is not relevant to the transparency SSAC because the transparency SSAC only addresses the light availability for photosynthesis.

*Conclusion:* The conclusions of the petition are appropriate. The existing criterion was not based on any assumptions related to risk assessment. Also, since the SSAC addresses only the relative ability of the water body to allow light available for photosynthesis, the effect of characteristics of the site on toxicity or bioavailability of a compound is not relevant. Therefore, the factor is not applicable as indicated in the petition. While the considerations associated with 62-302.800(2)(c)4. are not relevant here, the EPA notes that its review of the two part approach described in the TSD demonstrates that the existing

conditions and those expected to be achieved following the implementation of proposed discharge improvements will result in conditions that protect the designated uses of the Fenholloway River.

Economic Impact Statement (corresponds to Type II-specific requirements outlined in 62-302.800(2)(c)5.)

Buckeye also provides that this SSAC will not impose any additional costs to FDEP, other state or local government entities, individuals or small businesses.

*Conclusion:* The petitioner provided the information necessary for the State to proceed with its rulemaking. This requirement does not have a corresponding CWA requirement.

Attainability Analysis (corresponds to Type II-specific requirements outlined in 62-302.800(2)(c)6.)

Lastly, the petition states that the SSAC are not more stringent than existing criteria and therefore no demonstration of attainability is required.

*Conclusion:* The petitioner provided the information necessary for the State to proceed with its rulemaking.

***Endangered Species Act***

Section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies, in consultation with the Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS), to ensure that their actions are not likely to jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of designated critical habitat of such species. With regard to consultation activities for section 7 of the ESA, the EPA Region 4 has concluded that the Agency's action to approve the iron and transparency (phytoplankton) SSAC would not likely adversely affect the threatened and endangered species or their critical habitat. The EPA's decision to approve the iron and transparency (as phytoplankton) SSAC is subject to the results of consultation under section 7 of the ESA with the U.S. Fish and Wildlife Service and National Marine Fisheries Service. The EPA will notify Florida of the results of the section 7 consultation upon completion of the action.

***Conclusions***

With the exception of the portion of the transparency SSAC which addresses the minimum number of measurements required to calculate the annual average compensation depth, which does not constitute a new or revised water quality standard, the remainder of the transparency (phytoplankton) SSAC and the entirety of the iron SSAC are considered to be new or revised water quality standards. Based on the reasons outlined above, it is our conclusion that the requirements of the CWA and 40 CFR Part 131 have been met for the new or revised water quality standards components of the iron and transparency (phytoplankton) SSAC. Therefore, these SSAC are approved by the EPA pursuant to section 303(c) of the Act. As stated in the beginning of this document, the EPA is not acting on the DO SSAC or the transparency (as SAV) SSAC, pending further action by the State.

